

(5) negative electrodes and an electrolyte into which the positive and negative electrodes and the separator are immersed.

Please replace the paragraph starting on page 2, line 22 and ending at page 3, line 16 with the following paragraph:

The Cu-based alloy foil includes at least one material selected from nickel, titanium, magnesium, tin, zinc, boron, chromium, manganese, silicon, cobalt, iron, vanadium, aluminum, zirconium, niobium, phosphorous bismuth, lead, silver and misch metal. The amount of nickel is 0.8 to 4 wt% of the copper, that of titanium is 0.2 to 4 wt% of the copper, that of magnesium is 0.05 to 0.6 wt% of the copper, and that of tin is 0.1 to 2.0 wt% of the copper. The amount of zinc is 0.0005 to 0.5 wt% of the copper, that of boron is 0.0005 to 5.0 wt% of the copper, that of boron is 0.0005 to 5.0 wt% of the copper, that of chromium is 0.0005 to 0.5 wt% of the copper, and that of manganese is 0.1 to 1.0 wt% of the copper. The amount of silicon is 0.1 to 0.5 wt% of the copper, that of iron or cobalt is 0.01 to 2.0 wt% of the copper, that of vanadium is 0.0005 to 0.5 wt% of the copper, and that of aluminum is 0.005 to 0.5 wt% of the copper. The amount of zirconium is 0.0005 to 0.5 wt% of the copper, that of niobium is 0.0005 to 0.5 wt% of the copper, that of phosphorous is 0.02 to 0.16 wt% of the copper, that of bismuth is 0.0005 to 0.5 wt% of the copper, that of lead is 0.0005 to 0.5 wt% of the copper, and that of silver is 0.0005 to 0.5 wt% of the copper. If the materials are out of this range, it is difficult to obtain a foil having the desirable tensile strength.

IN THE CLAIMS

Please amend Claims 1-3 as follows:

1. (Twice Amended) A lithium secondary battery comprising:
a positive electrode formed by coating a lithium metal oxide on a positive current collector;
a negative electrode formed by coating carbonaceous materials or SnO_2 on a negative current collector, where the negative current collector is made of a Cu-based alloy foil with a thickness of 20 μm or less and the Cu-based alloy foil is prepared by adding at least one material selected from the group consisting of magnesium, tin,

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boron, chromium, manganese, cobalt, vanadium, zirconium, niobium, bismuth, lead, silver, and misch metal to a copper-based material selected from the group consisting of copper, copper/nickel, copper/titanium, and copper/nickel/titanium, wherein the Cu-based alloy foil is produced by a plating process;

a separator interposed between the positive and negative electrodes; and

an electrolyte into which the positive and negative electrodes and the separator are immersed.

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2. (Amended) The lithium secondary battery of claim 1 wherein an amount of nickel is 0.8 to 4 wt% of copper, an amount of titanium is 0.2 to 4 wt% of copper, an amount of magnesium is 0.05 to 0.6 wt% of copper, an amount of tin is 0.1 to 2.0 wt% of copper, an amount of boron is 0.0005 to 0.5 wt% of copper, an amount of chromium is 0.0005 to 0.5 wt% of copper, an amount of manganese is 0.1 to 1.0 wt% of copper, an amount of cobalt is 0.01 to 2.0 wt% of copper, an amount of vanadium is 0.0005 to 0.5 wt% of copper, an amount of zirconium is 0.0005 to 0.5 wt% of copper, an amount of niobium is 0.0005 to 0.5 wt% of copper, an amount of bismuth is 0.0005 to 0.5 wt% of copper, an amount of lead is 0.0005 to 0.5 wt% of copper, and an amount of silver is 0.0005 to 0.5 wt% of copper.

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3. (Twice Amended) A method for making a lithium secondary battery comprising:

forming a positive electrode by coating a lithium metal oxide on a positive current collector;

forming a negative electrode by coating carbonaceous materials or SnO_2 on a negative current collector, where the negative current collector is made of a Cu-based alloy foil with a thickness of 20 μm or less and the Cu-based alloy foil is prepared by adding at least one material selected from the group consisting of magnesium, tin, boron, chromium, manganese, cobalt, vanadium, zirconium, niobium, bismuth, lead, silver, and misch metal to a copper-based material selected from the group consisting of copper, copper/nickel, copper/titanium, and copper/nickel/titanium, wherein the Cu-based alloy foil is produced by a plating process;

interposing a separator between the positive and negative electrodes; and

63 injecting an electrolyte to immerse the positive and negative electrodes and the separator.

Please add new Claims 4-31 as follows:

4. (New) A lithium secondary battery comprising:
a positive electrode formed by coating a lithium metal oxide on a positive current collector;
a negative electrode formed by coating at least one of carbonaceous materials and SnO_2 on a negative current collector, where the negative current collector is made of a copper-based alloy foil with a thickness of 20 μm or less and the copper-based alloy comprises at least two materials selected from the group consisting of nickel, titanium, magnesium, tin, zinc, boron, chromium, manganese, silicon, cobalt, iron, vanadium, aluminum, zirconium, niobium, phosphorous, bismuth, lead, silver, and misch metal;
a separator interposed between the positive and negative electrodes; and
an electrolyte into which the positive and negative electrodes and the separator are immersed.
5. (New) The lithium secondary battery of claim 4, wherein the at least two materials comprise at least three materials.
6. (New) The lithium secondary battery of claim 4, wherein the at least two materials comprise at least four materials.
7. (New) The lithium secondary battery of claim 4, wherein the at least two materials comprise nickel and titanium.
8. (New) The lithium secondary battery of claim 5, where the at least three materials comprise nickel, titanium, and magnesium.
9. (New) The lithium secondary battery of claim 6, wherein the at least four materials comprise nickel, titanium, magnesium, and manganese.

10. (New) The lithium secondary battery of claim 6, wherein the at least four materials comprise nickel, titanium, magnesium, and zinc.

11. (New) The lithium secondary battery of claim 7, wherein the amount of nickel is 0.8 to 4 wt% of the copper, and the amount of titanium is 0.2 to 4 wt% of the copper.

12. (New) The lithium secondary battery of claim 8, wherein the amount of nickel is 0.8 to 4 wt% of the copper, the amount of titanium is 0.2 to 4 wt% of the copper, and the amount of magnesium is 0.05 to 0.6 wt% of the copper.

13. (New) The lithium secondary battery of claim 9, wherein the amount of nickel is 0.8 to 4 wt% of the copper, the amount of titanium is 0.2 to 4 wt% of the copper, the amount of magnesium is 0.05 to 0.6 wt% of the copper, and the amount of manganese is 0.1 to 1.0 wt% of the copper.

14. (New) The lithium secondary battery of claim 10, wherein the amount of nickel is 0.8 to 4 wt% of the copper, the amount of titanium is 0.2 to 4 wt% of the copper, the amount of magnesium is 0.05 to 0.6 wt% of the copper, and the amount of zinc is 0.0005 to 0.5 wt% of the copper.

15. (New) The lithium secondary battery of claim 4, wherein the Cu-based alloy consists essentially of copper, nickel, and titanium.

16. (New) The lithium secondary battery of claim 4, wherein the Cu-based alloy consists essentially of copper, nickel, titanium, and magnesium.

17. (New) The lithium secondary battery of claim 4, wherein the Cu-based alloy consists essentially of copper, nickel, titanium, magnesium, and manganese.

18. (New) The lithium secondary battery of claim 4, wherein the Cu-based alloy consists essentially of copper, nickel, titanium, magnesium, and zinc.

19. (New) A method for making a lithium secondary battery comprising:
forming a positive electrode by coating a lithium metal oxide on a positive current collector;
forming a negative electrode by coating at least one of carbonaceous materials and SnO_2 on a negative current collector, where the negative current collector is made of a Cu-based alloy foil with a thickness of 20 μm or less, and the Cu-based alloy foil including at least two materials selected from the group consisting of nickel, titanium, magnesium, tin, zinc, boron, chromium, manganese, silicon, cobalt, iron, vanadium, aluminum, zirconium, niobium, phosphorous, bismuth, lead, silver, and misch metal;
interposing a separator between the positive and negative electrodes; and
injecting an electrolyte to immerse the positive and negative electrodes and the separator.

20. (New) The method of claim 19, wherein the at least two materials comprise at least three materials.

21. (New) The method of claim 19, wherein the at least two materials comprise at least four materials.

22. (New) The method of claim 19, wherein the at least two materials comprise nickel and titanium.

23. (New) The method of claim 20, wherein the at least three materials comprise nickel, titanium, and magnesium.

24. (New) The method of claim 21, wherein the at least four materials comprise nickel, titanium, magnesium, and manganese.

25. (New) The method of claim 21, wherein the at least four materials comprise nickel, titanium, magnesium, and zinc.

26. (New) A lithium secondary battery comprising:
a positive electrode formed by coating a lithium metal oxide on a positive current collector;
a negative electrode formed by coating at least one of carbonaceous materials and SnO_2 on a negative current collector, where the negative current collector is made of a copper-based alloy foil with a thickness of 20 μm or less, and the copper-based alloy foil includes at least two materials selected from the group consisting of nickel, titanium, magnesium, manganese, and zinc;
a separator interposed between the positive and negative electrodes; and
an electrolyte into which the positive and negative electrodes and the separator are immersed.

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27. (New) The lithium secondary battery of claim 26, wherein the at least two materials comprise at least three materials.

28. (New) The lithium secondary battery of claim 26, wherein the at least two materials comprise at least four materials.

29. (New) The lithium secondary battery of claim 4, wherein the copper-based alloy foil is produced by an electro-plating process.

30. (New) The method of claim 19, wherein the copper-based alloy foil is produced by an electro-plating process.

31. (New) The lithium secondary battery of claim 26, wherein the copper-based alloy foil is produced by an electro-plating process.